



University of Pennsylvania
ScholarlyCommons

Tool Data

Browse by Type

5-6-2015

Statistical Process Control of PECVD

Hiromichi Yamamoto

Singh Center, hyam@seas.upenn.edu

Follow this and additional works at: http://repository.upenn.edu/scn_tooldata

Yamamoto, Hiromichi, "Statistical Process Control of PECVD", *Tool Data*. Paper 27.

http://repository.upenn.edu/scn_tooldata/27

This paper is posted at ScholarlyCommons. http://repository.upenn.edu/scn_tooldata/27

For more information, please contact libraryrepository@pobox.upenn.edu.

Statistical Process Control of PECVD

Keywords

Statistical Process Control, PECVD

Creative Commons License



This work is licensed under a [Creative Commons Attribution-Share Alike 4.0 License](https://creativecommons.org/licenses/by-sa/4.0/).

Statistical Process Control of PECVD

Hiromichi Yamamoto (5/6/2015)

Deposition Rate

1. SiO₂

- Default Recipe

T = 350 °C

10%SiH₄/He = 50 sccm

N₂O = 710 sccm

N₂ = 90 sccm

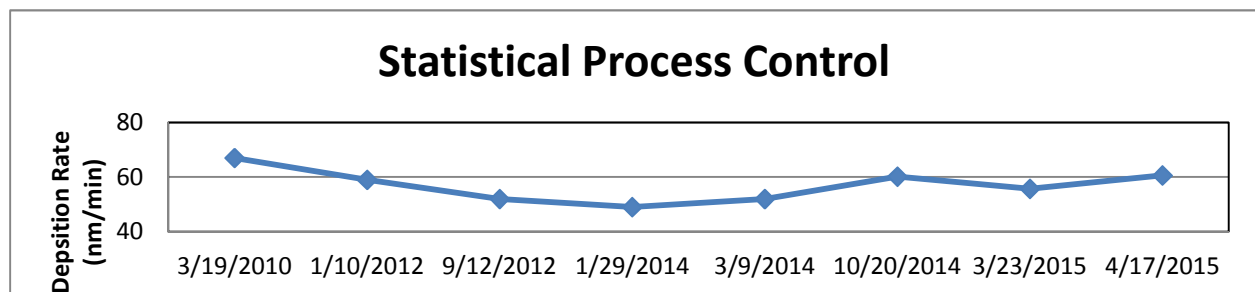
Pressure = 1,000 mTorr

RF = 20 W

Refractive index = 1.462 at 632.8 nm (updated on 9/12/2012)

- Literature value = 1.457 at 632.8 nm

Date	Deposition Rate (nm/min)
3/19/2010	67
1/10/2012	59
9/12/2012	52
1/29/2014	49
3/9/2014	52
10/20/2014	60
3/23/2015	56
4/17/2015	61



2. Si₃N₄

- Default Recipe

T = 350 °C

10%SiH₄/He = 170 sccm

NH₃ = 20 sccm

N₂ = 820 sccm

Pressure = 1,000 mTorr

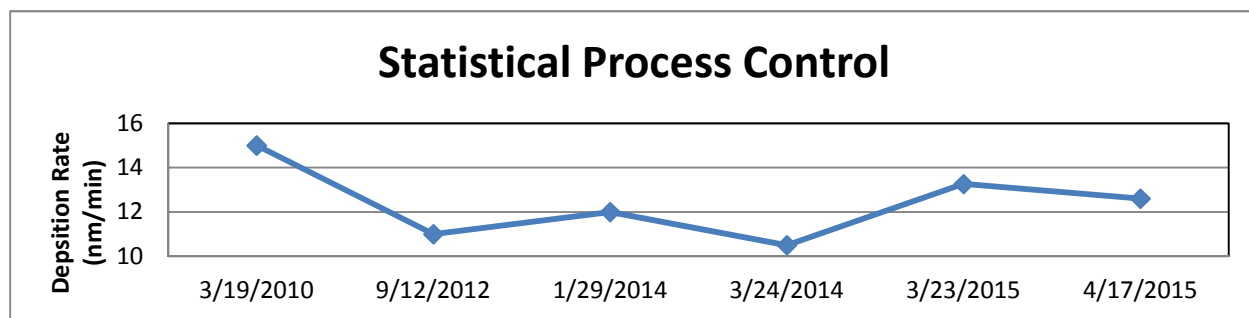
RF = 20 W (13 sec)

LF = 20 W (7 sec)

Refractive index = 1.981 at 632.8 nm (updated on 9/12/2012)

- Literature value = 2.023 at 632.8 nm

Date	Deposition Rate (nm/min)
3/19/2010	15
9/12/2012	11
1/29/2014	12
3/24/2014	11
3/23/2015	13
4/17/2015	13



3. a-Si

- Default Recipe

T = 250 °C

10%SiH₄/He = 500 sccm

Pressure = 1,000 mTorr

RF = 8 W

Refractive index = 3.843 (updated on 9/21/2012)

- Literature value = 4.500 at 632.8 nm

Date	Deposition Rate (nm/min)
3/19/2010	17
9/12/2012	5.7
3/24/2014	5.3
3/23/2015	6.9
4/17/2015	6.5

